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Another star,  $\phi_2$  *Orionis*, is interesting on account of its great radial velocity. Approximate measurements give + 96 kilometers on October 28, 1902, + 103 on November 24th, and + 98 on December 30th. It is not likely that the range of seven kilometers in these measurements indicates a real variability in the velocity of the star, for the plate of November 24th was taken under poor conditions and was very much under-exposed.

Approximate measurements of the plates of the spectrum of  $\tau$  *Ursæ Majoris*, taken on January 22, 1900, and April 15, 1902, respectively, showed a range of five kilometers. As this was sufficient to cause suspicion of variability, Mr. STEBBINS measured both plates very carefully, and obtained the velocities — 3.8 kilometers for the first date and — 10.2 for the second, showing that the star is almost certainly a binary. A rough measurement of a later plate gives a velocity of — 4 kilometers (on December 29, 1902).

Most of the measurements of the other plates were made by Dr. H. D. CURTIS, and many of the plates were exposed by him.

H. M. REESE.

#### THE DIAMETER OF *TITAN*.

The statement is sometimes made in books on astronomy that the diameter of *Titan* is probably 3,000 to 4,000 miles. These values are undoubtedly too large. When the micrometer-wires of the 36-inch refractor are separated to an amount corresponding to a diameter of 4,000 miles and the image of *Titan* is placed between them, this image, when the atmospheric conditions are sufficiently good to stand very high powers, will easily be seen to be entirely inside the inner edges of both wires. When the wires are separated to correspond to a diameter of three thousand miles the image is very nearly tangent to the inner edges of both wires, from which it may be inferred that the diameter is certainly less than 3,000 miles.

During the past opposition, while measuring the relative positions of the satellites of *Saturn*, I have on several nights satisfied myself respecting the correctness of the above statements. On two nights when the seeing was particularly good I have also measured the apparent diameter of *Titan*, with the following results:—

*Publications of the*

1902, June 19    0".60 or 2,473 miles  
 October 2       0 .53 or 2,332 miles

The first of these measures was made under excellent atmospheric conditions. A power of 2400 was used, and even with this very high power *Titan* presented a sharply defined disk. It is seldom that so high a power can be used for such work. The second measure was made with a power of 1000. For so small a distance this is about the minimum power that can be used to advantage.

On five nights in each of the years 1894 and 1895 Professor BARNARD measured the diameter of *Titan* with the large refractor of the Lick Observatory. His separate results, given in arc, when reduced to miles, range from about 2,100 to nearly 3,200 miles. The mean result which he obtains for the two years is 2,720 miles.

If we say that the diameter of *Titan* is about 2,500 miles we shall probably not be very much in error.

January 15, 1903.

W. J. HUSSEY.

A NEW DOUBLE STAR = A. B. of  $\Sigma$  1233.

Observations made with the 36-inch telescope show that the principal component of the wide pair  $\Sigma$  1233 is itself a close double star. Measures were made on two nights as follows:—

AB (NEW).

1903.026	<u>59°.9</u>	<u>0".26</u>	<u>7.5-7.5</u>	1000, 3
.040	<u>62 .9</u>	<u>0 .24</u>	<u>7.5-7.5</u>	1500, 3
1903.03	<u>61°.4</u>	<u>0".25</u>	<u>7.5-7.5</u>	

AB and C =  $\Sigma$  1233.

1903.026	<u>328°.8</u>	<u>18".21</u>	<u>7.0-11.0</u>	520, 3
.040	<u>328 .9</u>	<u>18 .11</u>	<u>7.0-11.0</u>	520, 3
1903.03	<u>328°.8</u>	<u>18".16</u>	<u>7.0-11.00</u>	

STRUVE's measure of the wide pair is:—

1828.71    331°.5    18".20    7.2-11.5

The star's approximate place for 1880.0 is R. A. 8<sup>h</sup> 21<sup>m</sup>.9;  
 Decl. — 2° 4'.

R. G.AITKEN.

January 16, 1903.